SONY

3-800-368-21(1)

# Digital Audio Tape Deck

Operating Instructions

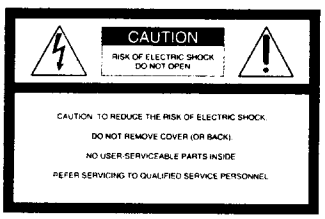
DAT
Digital Audio Tape

*DTC-ZA5ES*

## WARNING

**To prevent fire or shock hazard, do not expose the unit to rain or moisture.**

**To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.**




This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

### Owner's record

The model number is located on the rear exterior and serial number is on the rear. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. DTC-ZA5ES
Serial No. _____

### INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

### CAUTION

You are cautioned that any change or modifications not expressly approved in this manual could void your authority to operate this equipment.

### NOTICE FOR THE CUSTOMERS IN THE UNITED KINGDOM

A moulded plug complying with BS 1363 is fitted to this equipment for your safety and convenience.

Should the fuse in the plug supplied need to be replaced, a 5 AMP fuse approved by ASTA or BSI to BS 1362, (i.e. marked with ⓐ or ⓑ mark) must be used.

If the plug supplied with this equipment has a detachable fuse cover, be sure to attach the fuse cover after you change the fuse. Never use the plug without the fuse cover. If you should lose the fuse cover, please contact your nearest Sony service station.

***IMPORTANT***

If the plug supplied is not suitable for the socket outlets in your home, it should be cut off and an appropriate plug fitted in accordance with the following instructions.

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red. Do not connect either wire to the earth terminal in the plug which is marked by the letter E or by the safety earth symbol Y or coloured green or green-and-yellow.

***WARNING***

To prevent shock hazard, do not insert the plug cut off from the mains lead into a socket outlet. This plug cannot be used and should be destroyed.

# Welcome!

Thank you for purchasing the Sony Digital Audio Tape Deck. Before operating the unit, please read this manual thoroughly and retain it for future reference.

The DTC-ZA5ES has the following features:

- High-density linear converters.
- SBM (Super Bit Mapping) function for improved dynamic range.
- Emphasis recording.
- The Serial Copy Management System.
- Three sampling frequencies (48kHz, 44.1kHz, 32kHz).
- Recording and playback in long-play mode.
- Analog line and microphone recording.
- Start IDs and program numbers that allow you to locate tracks quickly.
- See-through cassette compartment lid that allows you to view tape operations during playback and recording.

**Do not use thin-tape cassettes (with a playing time of over 120 minutes) since this may cause the unit to display inaccurate time information, or result in tape damage caused by abnormal operation.**

# About This Manual

The instructions in this manual are for DTC-ZA5ES.

### Conventions

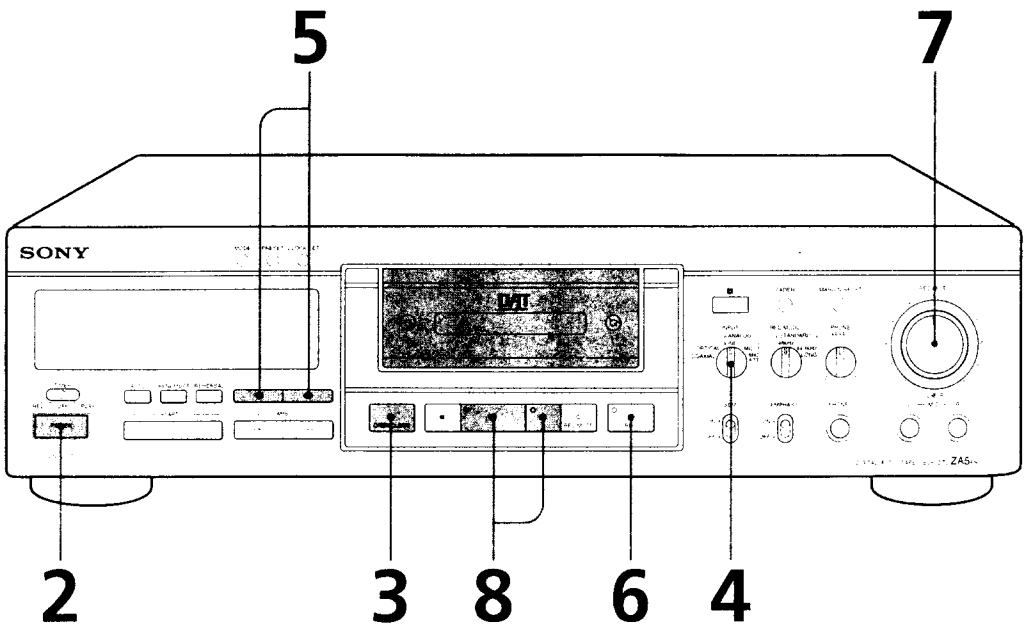
Instructions in this manual describe the controls on the deck.
The following icon is used in this manual:

Indicates useful information or tips that make a task easier.

Indicates a task that requires use of the remote.

# TABLE OF CONTENTS

# Recording on a DAT

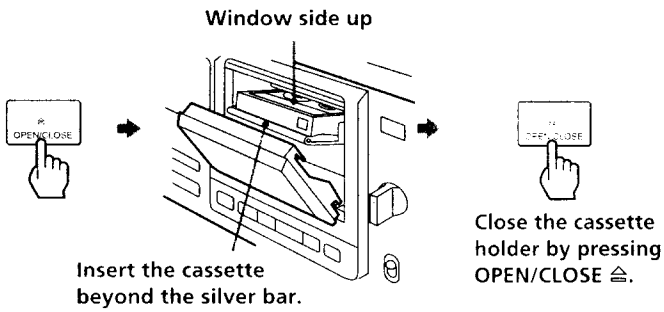



See pages 7 and 8 for hookup information.

**1** Turn on the amplifier and play the program source you want to record.

**2** Press POWER.

**3** Press OPEN/CLOSE ⏏ and insert a cassette.




**4** Set INPUT to the corresponding input connector.

| To record through | Set INPUT to |
|---|---|
| ANALOG (LINE) IN | ANALOG |
| MIC L/R | MIC or MIC ATT* |
| DIGITAL OPTICAL IN | OPTICAL |
| DIGITAL COAXIAL IN | COAXIAL |

* MIC ATT lets you lower (attenuate) excessively high signal levels by –20 dB when recording with microphones.

**When recording with a microphone**

Connect the microphones to the MIC L and R jacks located on the lower right corner of the front panel.

**5** Locate the position where you want to start recording.

**To record from the beginning of the tape**

Press ◀◀ to rewind the tape to its beginning.

**To record from the end of the recorded portion**

1 Press ◀◀ to rewind the tape to its beginning.

2 Press ▶▶.
The deck locates the end of the recorded portion on the tape and stops automatically.

**6** Press REC ●.

The deck becomes ready to record.

**7** When recording the analog input signal, adjust the recording level with REC LEVEL.

The recommended recording level is 3. For details, refer to "Adjusting the Recording Level for Analog Recording" on page 11.

**8** Press ❚❚ or ►.

Recording starts.

**9** Start playing the program source.

When the tape reaches the end, the deck rewinds it automatically to its beginning and stops (Auto Rewind).

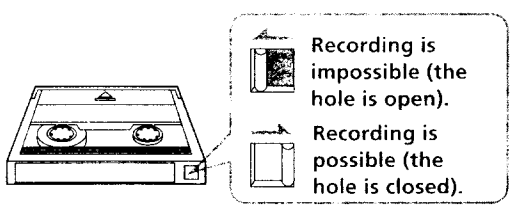
**If "UNLOCK" appears in the display**

The program source is not connected to the deck properly or is not turned on. Make sure that the program source is properly connected or turned on.

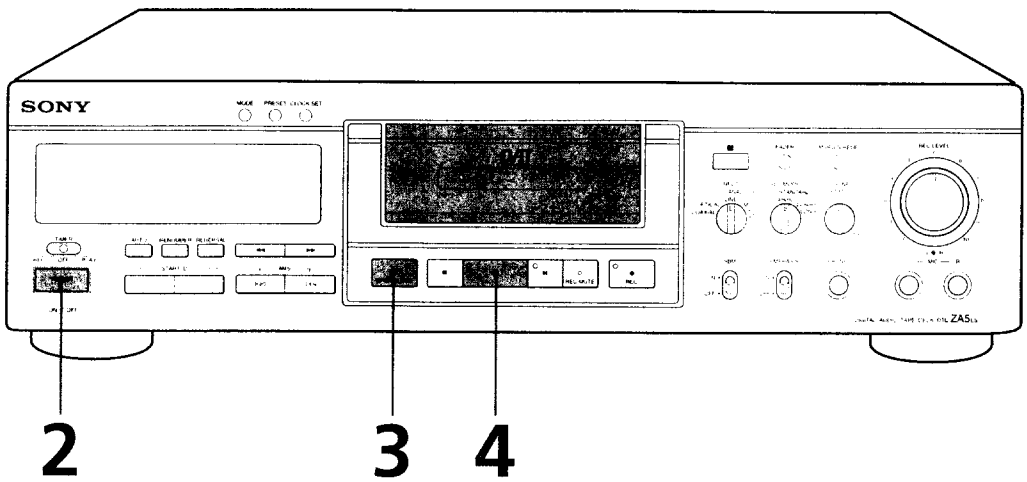
| To | Press |
|---|---|
| Stop recording | ■ |
| Pause recording | ❚❚. Press the button again to resume recording. |
| Take out the cassette | OPEN/CLOSE ⏏ after stopping recording |

**To prevent accidental erasure**

Slide the record-protect tab to the left as shown in the illustration below.



# Playing a DAT

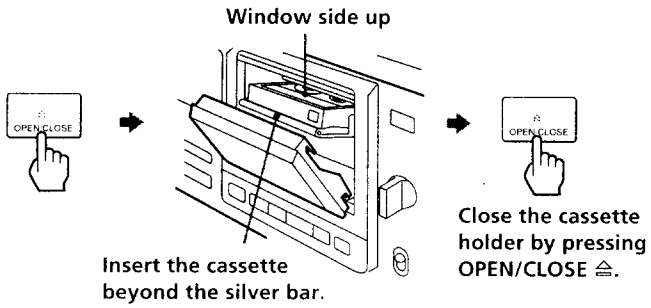



See pages 7 and 8 for hookup information.

**1** Turn on the amplifier and set the source selector to the position for DAT.

**2** Press POWER.

**3** Press OPEN/CLOSE ⏏ and insert a cassette.




**4** Press ►.

The deck starts playing. Adjust the volume on the amplifier.

| To | Press |
|---|---|
| Stop playing | ■ |
| Go to the next track | ▷▷I |
| Go to the preceding track | I◁◁ |
| Fast-forward or rewind | ►► or ◄◄ when the deck is stopped |
| Fast-forward or rewind while monitoring the sound | ►► or ◄◄ during playback. Release the button to resume normal playback. |
| Take out the cassette | OPEN/CLOSE ⏏ after stopping playing |

**To use headphones**

Connect them to the PHONES jack. Use PHONE LEVEL to adjust the volume.

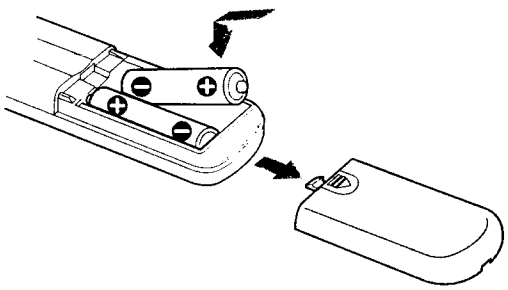
# Unpacking

Check that you have received the following supplied items:

- Audio connecting cords (2)
- Remote commander (remote) RM-D868 (1)
- Size-AA (R6) batteries (2)
- Operating instructions (1)
- Warranty card (Canadian model only) (1)

## Inserting batteries into the remote

Insert two size-AA(R6) batteries, matching the + and – on the batteries with the markings inside the battery compartment.



**When to replace the batteries**

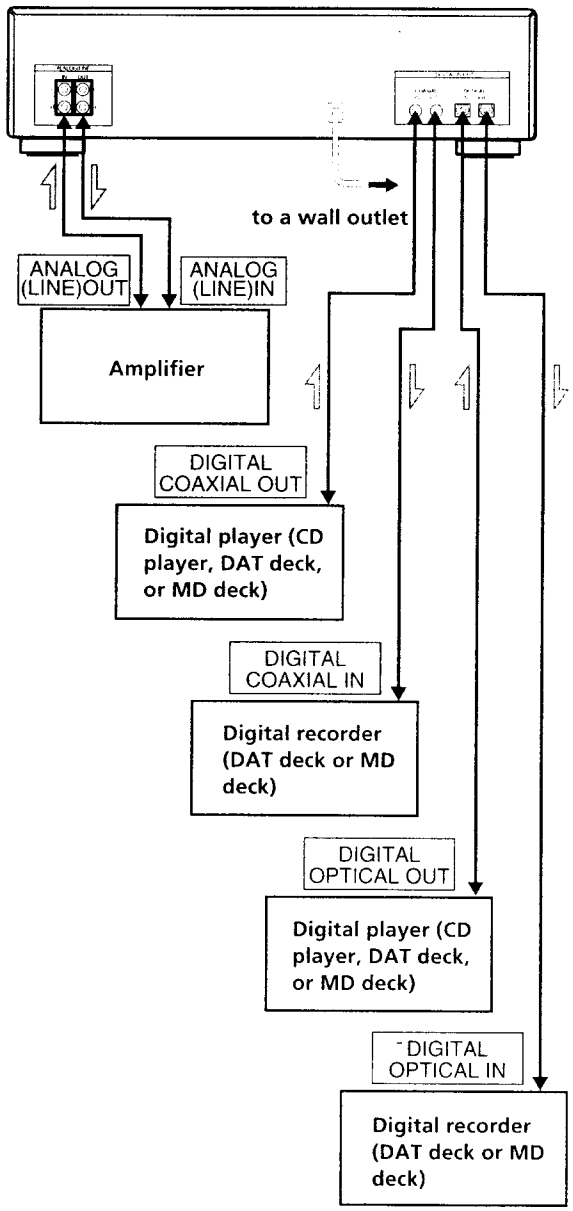
With normal use, batteries should last for about 6 months. When the remote no longer operates the deck, replace both batteries.

**Notes**

- Do not leave the remote near an extremely hot or humid place.
- Do not drop any foreign matter into the remote casing, particularly when replacing the batteries.
- Do not expose the remote sensor to direct sunlight or illumination as doing so may cause malfunction.
- When not using the remote for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion.

# Hookup Overview

This section describes how to hook up your deck to an amplifier, CD player, MD deck, or other audio component. Be sure to turn off the power to all components before making the connections.

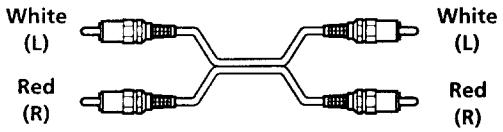



: Signal flow

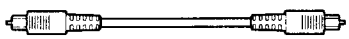
# Hookups

**What cords will I need?**

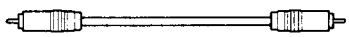
- Audio connecting cords (supplied) (2)




- Optical cables (POC-15 etc.) (not supplied) (2)

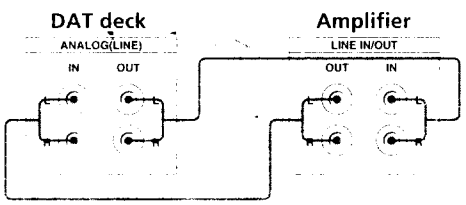


- Coaxial digital connecting cable (VMC-10G etc.) (not supplied) (1)



## Connecting the deck to an amplifier

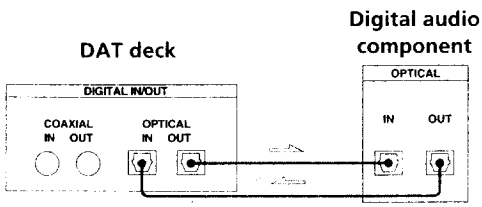
Use the supplied audio connecting cords to connect the deck to an amplifier. Be sure to match each color-coded plug to the appropriate jack: red (right) to red and white (left) to white. To prevent hum and noise, be sure to make connections firmly.



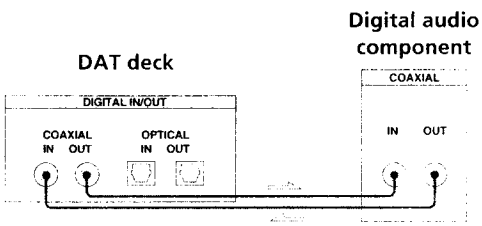

## Connecting the deck to a digital audio component

Connect the component via the DIGITAL IN/OUT jacks using optical cables or coaxial digital connecting cords. In the case of optical cables, take the caps off the jacks before plugging in the cables.

- **Connection with optical cables**




- **Connection with coaxial digital connecting cable**

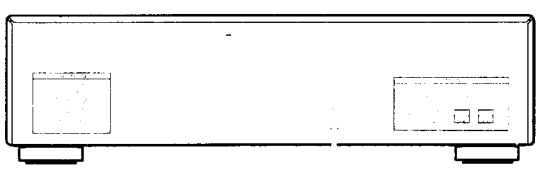



**Note**

If "PROHIBIT" appears in the display, recording through the digital jack is not possible.
In this case, set the INPUT switch to ANALOG and record the program source through the ANALOG (LINE) IN jacks.

## Connecting the AC power cord

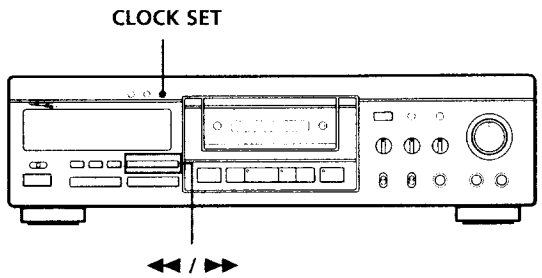
Connect the AC power cord to a wall outlet.



→ to a wall outlet

# Setting the Clock

Your deck has a built-in clock to keep track of the current date and time. Once you set the date and time, this information will be recorded on the tape along with the audio signal during recording, allowing you to check the recording date of the tape during playback at a later time.




**1** With the unit stopped, press CLOCK SET.
"DATE" and the year indication start to flash.

**2** Press ◀◀ or ▶▶ to set the year, then press CLOCK SET again.
The year indication stops flashing and the month indication begins to flash.

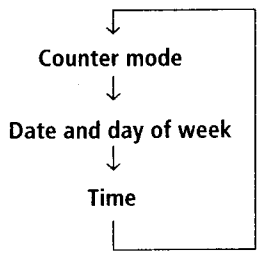

**3** Repeat step 2 until all items have been set.
After setting the seconds, press CLOCK SET to start the clock.

**The days of the week are displayed as follows:**
Sunday: "SU", Monday: "MO", Tuesday: "TU", Wednesday: "WE", Thursday: "TH", Friday: "FR", Saturday: "SA".

**Time display**
- U.S.A. model:
  Time is displayed in a 12-hour format with midnight and noon indicated as follows:
  Midnight: 12:00 AM
  Noon: 12:00 PM
- U.K. model:
  Time is displayed in a 24-hour format with midnight and noon indicated as follows:
  Midnight: 0:00
  Noon: 12:00

## Displaying the date and time

Press PRESENT on the remote.
Each time you press PRESENT, the display changes in the following order:




## Adjusting the clock

**1** Press CLOCK SET repeatedly until the item you want to change begins to flash.

**2** Press ◀◀ or ▶▶ to decrease or increase the displayed item.

**3** Press CLOCK SET repeatedly until the seconds begin to flash, then press CLOCK SET again to start the clock.

**For more accurate time recordings**
Adjust the clock once a week.

**Notes**
- When you first set the clock after unpacking the deck, " -- -- '-- -- " will appear when you press the CLOCK SET button. This is normal. Set the clock according to the procedures above.
- Your deck uses a back-up battery to keep the clock running when the power is turned off. The life of the battery is approximately seven years under normal use. When the battery starts to run down, the clock will stop operating normally. When this occurs, have the battery replaced (for a fee) at your dealer or nearest Sony Service Center .

*For basic recording operations, see "Recording on a DAT" on pages 4 and 5.*

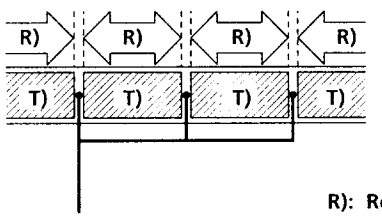
# Things You Should Know Before Recording

## The difference between a blank section and a sound-muted section

The deck distinguishes between two kinds of silent sections, which are respectively called a "blank section" or "sound-muted section".

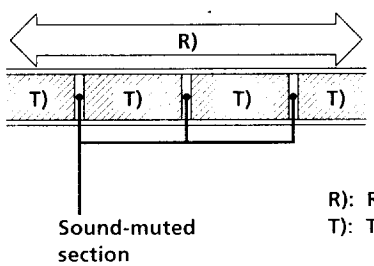
### Blank section

This is a section on which no signal has ever been recorded.




### Sound-muted section

This is a section on which a signal has been recorded but at a level that is not audible.




## Important

**Make sure no blank sections are created while you are recording. The existence of blank sections within recorded material will make search operations using the ⏮/⏭ buttons impossible and destroy the continuity of the absolute time codes.**

## Absolute time codes

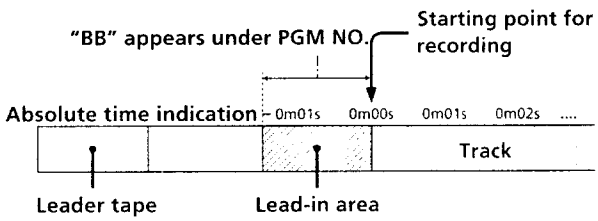
The absolute time indicates the time elapsed from the beginning of the tape. Once recorded, the absolute time codes cannot be re-written.

### For accurate recording of absolute time codes

- If the tape is blank, make sure to start recording from the beginning of the tape.
- Use the Record Mute function (see page 13) to insert spaces between tracks. Do not advance the tape with ▶ or ▶▶.
- To start recording from the middle of a tape, use the End Search function (see page 11) to locate the end of the recorded portion. This will prevent the creation of blank sections.

## Lead-in area

When the deck is loaded with a new cassette tape and it detects the leader tape, it automatically creates a lead-in area, as shown in the figure below. "BB" appears in the display for about 1 second at this time. The lead-in area can be inadvertently erased on another DAT deck if you press REC ● to start recording from the beginning of the tape without closing the cassette lid first. To prevent this, press OPEN/CLOSE ⏏ to close the cassette holder before you start recording.




## If "EMPHASIS" appears in the display

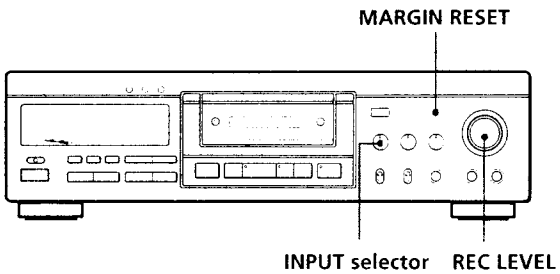
The deck is recording a digital signal with emphasis (in the higher frequencies). The recording will also contain the same emphasis.

## If the deck is left in recording pause for more than 10 minutes

Recording pause will be released automatically, the deck will stop and "SOURCE" will appear in the display.
To resume recording, press REC ●. The deck will change to recording pause.

# Adjusting the Recording Level for Analog Recording

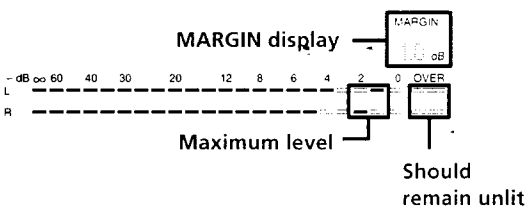
Before you start recording through the ANALOG LINE IN or MIC jacks, set the INPUT switch to ANALOG (LINE, MIC, or MIC ATT) and adjust the recording level.




**1** Follow steps 1 through 6 of "Recording on a DAT" on pages 4 and 5.

**2** Play the portion of the program source with the strongest signal level.

**3** While monitoring the sound, turn REC LEVEL to adjust the recording level so that the maximum level of the peak level meters do not enter the OVER (red) range.




The segments of the peak level meters corresponding to the maximum signal strength remain lit longer than normal.
The MARGIN display shows the margin remaining between maximum signal strength and 0 dB. Changing each time a stronger signal is input.

### If the level exceeds 0 dB

The red segments under "OVER" light up, and "0.0 dB" flashes in the display. If these segments light steadily, sound distortion may occur. To avoid this, keep the recording level between –12 dB and 0 dB.

### When recording with a microphone

It may be necessary to set the INPUT selector to MIC ATT, instead of MIC, to reduce excessively high signal levels from vocals or musical instruments.

### To reset the margin indication

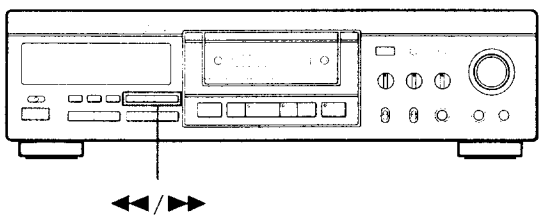
Press MARGIN RESET. The margin indication changes to "- - dB".

**4** Stop playing the program source.

**5** Press ❚❚ or ► to start recording, then start playing the program source.

# Locating the End of the Recorded Portion (End Search)

The deck automatically stops at the beginning of any blank section that is 9 seconds or longer. This prevents the creation of blank sections on the tape.




**1** Press ◄◄ with the deck stopped. The tape rewinds to the beginning.

**2** Press ►► .
The deck locates the end of the recorded portion (the beginning of the blank portion) and stops.

### If you press the REC ● button while in a blank section

The deck rewinds the tape to the beginning of the blank section and switches to record pause.

### If you press ►, ►►, or ▷▷| at the beginning of a blank section

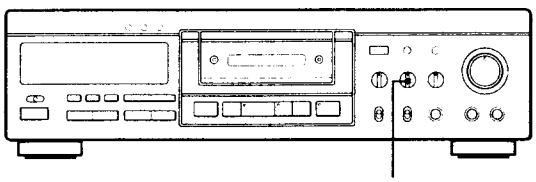
"TAPE END" flashes in the display.

### Notes

- If you press REC ● in a blank section, "BLANK" (and "WAIT") flash in the display and the deck automatically rewinds to the beginning of the blank section.
- If you press ►► in a blank section, End Search does not work, and the deck fast-forwards to the end of the tape.
- End Search fast-forwards to the end of the tape if the tape is completely blank (i.e., brand new).

# Setting the Recording Mode

You can select between two recording modes, STANDARD and LONG when recording signals input from analog or 32 kHz digital sources.
Digital signals are automatically recorded at the same sampling frequency as the input signal.




Set REC MODE to select the recording mode.

The following table shows the relationship between the REC MODE position (sampling frequency) and actual recording mode as determined by the input signal.

| Input signal | REC MODE position | Recording mode |
|---|---|---|
| Analog | STANDARD (48 kHz) | Standard play (48 kHz) |
| | STANDARD (44.1 kHz) | Standard play (44.1 kHz) |
| | LONG | Long play (32 kHz) |
| Digital (32 kHz) | STANDARD (48 kHz) | Standard play (32 kHz) |
| | STANDARD (44.1 kHz) | Standard play (32 kHz) |
| | LONG | Long play (32 kHz) |
| Digital (44.1 kHz) | STANDARD (48 kHz) | Standard play (44.1 kHz) |
| | STANDARD (44.1 kHz) | Standard play (44.1 kHz) |
| | LONG | Standard play (44.1 kHz) |
| Digital (48 kHz) | STANDARD (48 kHz) | Standard play (48 kHz) |
| | STANDARD (44.1 kHz) | Standard play (48 kHz) |
| | LONG | Standard play (48 kHz) |

In LONG mode (REC MODE set to LONG), you can record twice as long as in STANDARD mode on the same tape.

### Using the counter in LONG mode

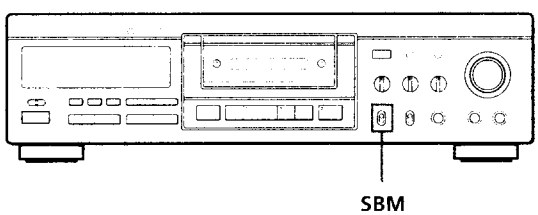
Since the tape running time, absolute time and remaining time are only displayed as STANDARD mode, be sure to double the time to obtain the corresponding times for LONG mode.

### Note

Do not change the INPUT or REC MODE setting while recording. This may cause an error in the "PGM TIME" display.

# Using Super Bit Mapping (SBM)

You can use the SBM function to record analog signals when the INPUT selector is set to ANALOG (LINE, MIC, or MIC ATT) and the REC MODE selector is set to STANDARD (either 48 kHz or 44.1 kHz). See "SBM (Super Bit Mapping)" on page 25 for details.




Set SBM to ON.
"SBM" appears in the display during recording with the SBM function.

### To turn the SBM function off

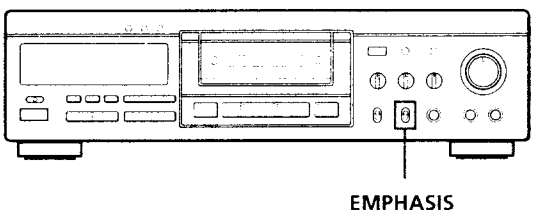
Set SBM to OFF.

## Using Emphasis (EMPHASIS)

This function reduces high-band noise by emphasizing the high-band signals during analog recording (pre-emphasis), and automatically lowering the emphasized signals during playback (de-emphasis).

- You can use the EMPHASIS function to record analog signals when the INPUT selector is set to ANALOG (LINE, MIC, or MIC ATT).
- When recording from a digital source with the INPUT selector set to OPTICAL or COAXIAL, emphasis turns on and off automatically depending on the source signal.

Since the recording level varies slightly according to the ON/OFF setting of the emphasis function, you should adjust the recording level only after setting the EMPHASIS switch.



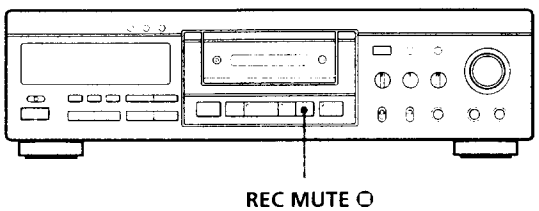
EMPHASIS

Set EMPHASIS to ON.
"EMPHASIS" appears in the display.

**To turn the Emphasis function off**
Set EMPHASIS to OFF.

## Inserting a Sound-Muted Section While Recording (Record Mute)

You can use Record Mute to insert a space of about 4 seconds between tracks. This is recommended if you plan to copy the DAT tape to an analog audio cassette tape, since the spaces will allow you to use automatic search functions to locate the beginning of each track.



REC MUTE O

**1** Press REC MUTE O where you want to insert a space while the deck is recording or in record pause.
"REC" flashes and tape transport continues for about 4 seconds, but no signal is recorded.
After creating the blank space, "REC" and ❚❚ light steadily in the display and the deck switches to record pause mode.

**To insert a blank space longer than 4 seconds**
Hold down REC MUTE O as long as you want. After about 4 seconds, "REC" begins to flash faster. The MARGIN display shows how long REC MUTE O has been pressed.
When you release REC MUTE O, "REC" and ❚❚ appear in the display and the deck switches to record pause mode.

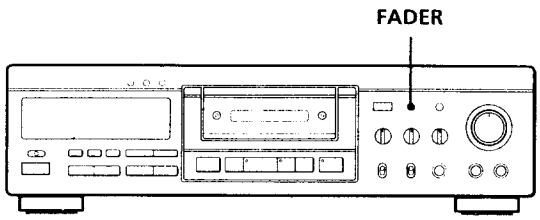
**2** Press ❚❚ or ► to resume recording.

**When recording from the beginning of a blank tape**
Be sure use Record Mute to create a sound-muted section. Do not advance the tape with ►► or ► . This will create a blank section on the tape (see page 10).

**Note**
If you do not create a sound-muted section at the beginning of a tape, you may not be able to move or erase a start ID (see page 21) that is recorded within 2 seconds from the beginning of the tape.

# Fade-in/Fade-out Recording (FADER)

You can use the fader to fade-in the beginning of a recording or fade-out the end of a recording. It's useful when you want to sart or end a recording in the middle of a song.




## Fading in

Press FADER while in the record pause mode to start fading in.
"FADE IN" appears in the display and the time display counts backward to "0.0s" while fading in.

## Fading out

Press FADER while recording to start fading out.
"FADE OUT" appears in the display and the time display counts backward to "0.0s" while fading out. After fading out, the deck automatically enters recording pause mode.

## Changing the fade time

The FADE IN and FADE OUT times are factory set to 5 seconds. You can change the fade-in and/or fade-out durations from 1 to 15 seconds.

**1** Press FADER a few times while the deck is in stop mode to choose either "FADE IN" or "FADE OUT."

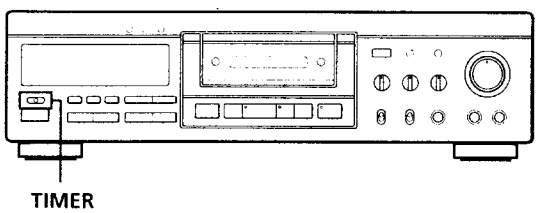
**2** Use ◀◀ or ▶▶ to select the respective fade duration.
Each time you press ◀◀ or ▶▶ the fade duration changes in 1 second.

**Note**

The fade-in and fade-out times automatically return to 5 seconds when you turn off the power.

# Recording Using a Timer (Timer Recording)

By connecting a timer (not supplied) to the deck, you can start and stop recording operations at specified times. For further information, refer to the instructions that came with the timer.




**1** Follow steps 1 to 7 of "Recording on a DAT" on pages 4 and 5 to prepare the deck for recording.

**2**
- To set the timer to start recording, press ■.
- To set the timer to end recording, do steps 8 and 9 of "Recording on a DAT" on page 5.
- To set the timer to both start and end recording, press ■.

**3** Set TIMER on the deck to REC.

**4** Set the timer as required.
- When you have set the timer to start recording, the deck turns off. When the specified time arrives, the deck turns on and after about 4 seconds starts recording.
- When you have set the timer to end recording, the deck continues recording, then when the specified time arrives, the deck stops recording and turns off.
- When you have set the timer to both start and end recording, the deck turns off. When the starting time arrives, the deck turns on and after about 4 seconds, recording starts. When the ending time arrives, the deck stops recording and turns off.

**5** After using the timer, be sure to set TIMER on the deck to OFF.

**Notes**

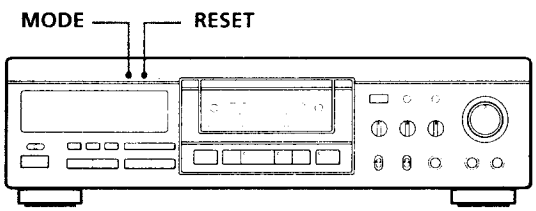
- If TIMER switch is left at the REC position, the deck will automatically start recording the next time you turn on the deck. Be sure to set the TIMER switch to OFF before turning on the deck.
- During Timer Recording (i.e., when the TIMER switch is set to the REC position), Auto Rewind (see page 16) will not function, even if the tape ends during recording. This is to prevent previously recorded material from being recorded over.

*For basic playback operations, see "Playing a DAT" on page 6.*

# About the Display

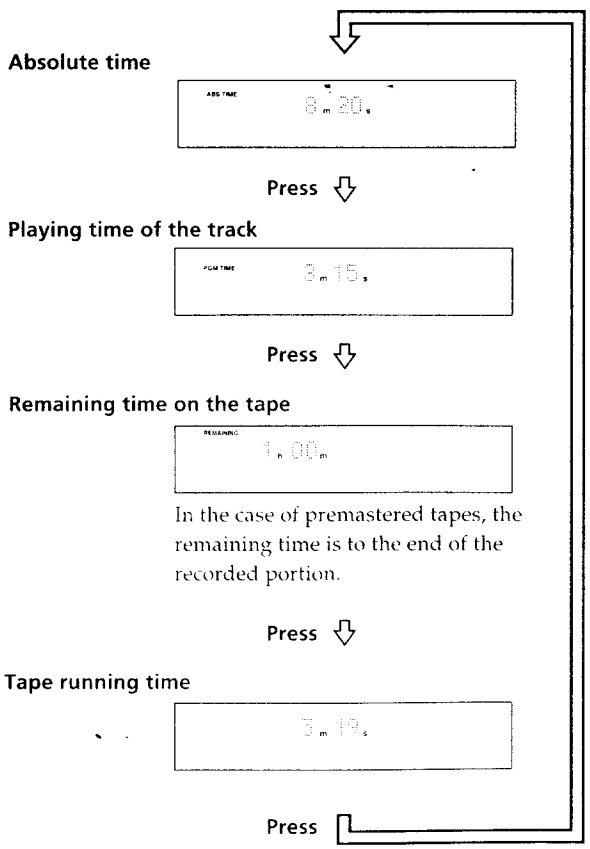
You can use the display to show the following types of time information:

- absolute time
- playing time of the track
- remaining time on the tape
- tape running time
- date and time of recording
- current date and time




## Changing the time display

Press MODE.
Each time you press the MODE button, the displayed information changes as follows.




**To reset the tape running time**
Press RESET.

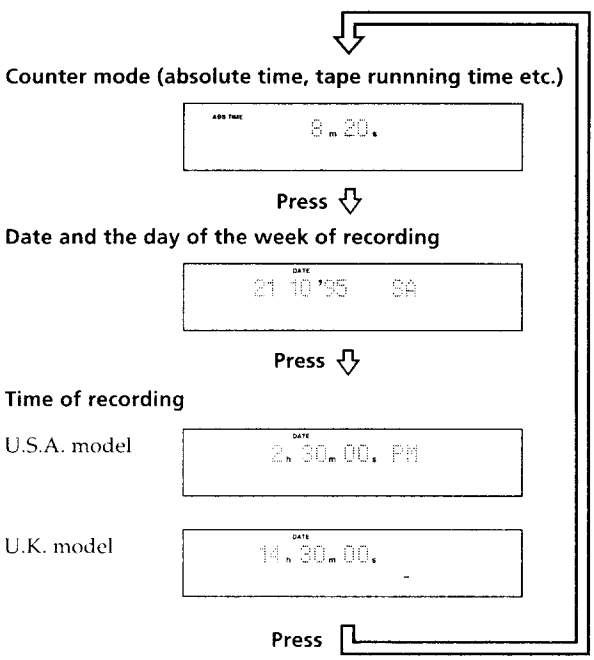
**Notes**

- When playing certain types of premastered tapes, "BB" may appear momentarily in the display at the beginning of the tape.
- The playing time of the track does not appear in the following cases
  — When you start playing from the middle of the track
  — During rewinding
- In standard-play mode, the remaining time on the tape appears about 16 seconds after you start playing.
- The displayed remaining time may vary somewhat from the actual remaining time, depending on the tape.

## Showing the date and time of recording

During playback you can check the date, day, and time at which the current portion was recorded. If this information is not recorded on the tape, however, nothing will appear.

Press RECORDED on the remote .
Each time you press RECORDED, the displayed information changes as follows.
"DATE" appears in the display when the date and day of the week or time of the recording appears.



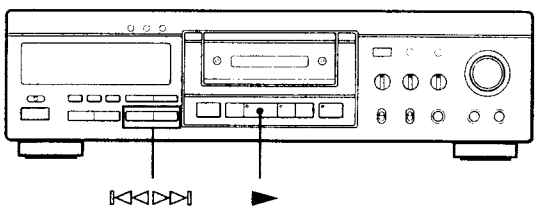

**To show the current time**
Press PRESENT on the remote.
Each time you press the PRESENT button, the current date and day of the week or the current time appears in sequence.
"DATE" appears in the display when the current date, day of the week and time appear (see "Displaying the date and time" on page 9).

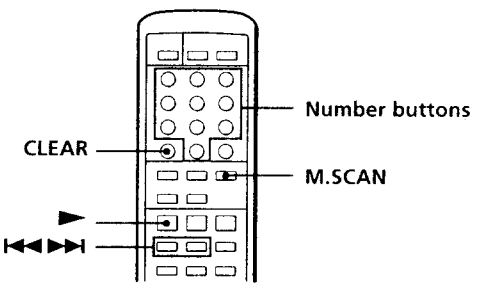
## If "EMPHASIS" appears in the display

The deck is playing an audio signal recorded with emphasis (in the higher frequencies). The deck, however, plays the signal while automatically deemphasizing it (with attenuation proportional to the degree of emphasis).

# Locating a Track (AMS*/Direct Access [i]/Music Scan [i])

You can locate the tracks in a number of ways, but only after you have recorded start IDs on the tape (see pages 19 to 21). To use Direct Access, program numbers must be recorded on the tape (see pages 19 and 21).




| To locate | Press |
|---|---|
| The beginning of the next or succeeding tracks (AMS) | ⏭ as many times as you want while playing. For example, to locate the second track ahead, press twice. |
| The beginning of the current track(AMS) | ⏮ once while playing |
| The beginning of preceding tracks (AMS) | ⏮ as many times as you want while playing. For example, to locate the second track behind, press three times. |
| By specifying the program number of a track (Direct Access) [i] | **1** Enter the program number of the track with the number buttons.<br>**2** Press ►. |
| By scanning the first 8 seconds of each track (Music Scan) [i] | **1** Press M.SCAN while the deck is stopped.<br>**2** Press ►.<br>The deck plays the first 8 seconds of each track in succession.<br>**3** When you find the track you want, press M.SCAN. The track continues playing. |

* AMS = Automatic Music Sensor.

**If you enter the wrong program number during Direct Access**

If you haven't pressed ►, press CLEAR, then enter the correct number.

If you already pressed ►, pressing CLEAR will not erase the wrong program number. Stop the deck and reenter the program number.

**You can use Music Scan while playing a track**

If you press the M.SCAN button while playing a track, the deck will rewind the tape to its beginning, then play the first 8 seconds of each track on the tape in succession.

**If the deck detects a blank section of 9 seconds or more, or the end of the tape**

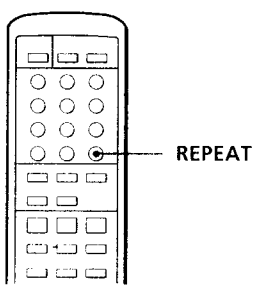
The deck rewinds the tape automatically to its beginning and stops (Auto Rewind)

**You can make the deck start playing automatically from the beginning of the tape after rewinding**

Press ► while holding down ◄◄.

# Playing Tracks Repeatedly (Repeat Play) [i]

You can play a specific track or all the tracks on the tape repeatedly.




## Playing all tracks repeatedly

Press REPEAT a few times while playing a track so that "REPEAT" appears in the display.

The deck plays all tracks 5 times, then stops automatically.

The deck automatically rewinds to the beginning of the tape and plays the portion from the beginning of the tape to that point if it detects any of the following during repeat play:

— A blank section of 9 seconds or more

— The end of the tape

**To stop playing all tracks repeatedly**

Press REPEAT a few times until "REPEAT" disappears.

**Note**
Repeat Play is canceled when you take out the cassette.

## Playing one track repeatedly

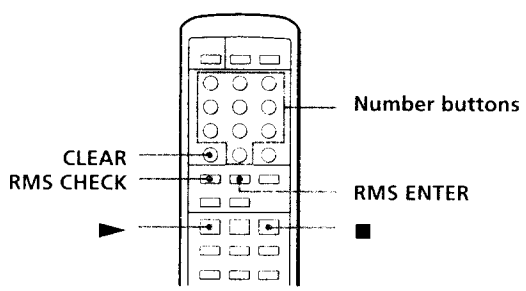
Press REPEAT a few times while playing the track you want to repeat until "REPEAT 1" appears in the display.
The deck plays the current track 5 times and then stops automatically.
The deck rewinds to the start ID of the current track and starts playing the portion from the stsrt ID to that point if it detects any of the following during repeat play:
— The next start ID
— A blank section of 9 seconds or more
— The end of the tape

**To stop playing one track repeatedly**
Press REPEAT a few times until "REPEAT 1" disappears.

**Note**
Repeat Play is canceled when you take out the cassette.

# Playing Tracks in the Order You Want (RMS Play)

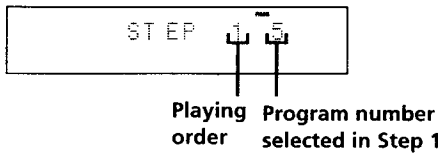
RMS (Random Music Sensor) Play lets you specify the order in which the tracks on the tape will be played back. You can create programs containing up to 60 tracks (using program numbers 1 to 99). Before using RMS Play, however, you must first record start IDs and program numbers on the tape (see pages 19 to 21).




**1** Enter the program number (1 to 99) of the track you want to play.

**If you enter the wrong number**
Press CLEAR, then enter the correct number.

**2** Press RMS ENTER.




**3** Repeat steps 1 and 2.

**4** Press ►.
The deck plays the programmed tracks in sequence.

## Checking the track order

You can check the order of tracks in your program by pressing RMS CHECK. Each time you press RMS CHECK, the track numbers appear in the order they were programmed.

**Note**
You cannot use the CLEAR button to cancel a programmed track while checking the track order.

## Adding a track to the program

Repeat steps 1 and 2 while the deck is stopped.

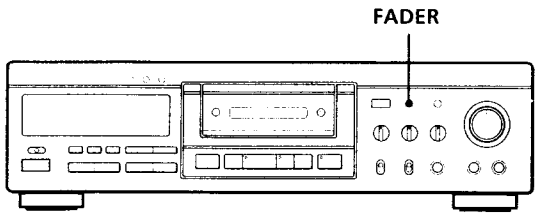
**Note**
You cannot add a track to a program during RMS playback.

## Canceling an entire program

Press ■ a few times until "RMS" disappears.

# Fade-in/Fade-out Playback (FADER)

You can use the fader to fade-in the beginning of playback or fade-out the end of playback. It's useful when you want want to record from DAT.




## Fading in

Press FADER while in the play pause mode to start fading in.
"FADE IN" appears in the display and the time display counts backward to "0.0s" while fading in.

## Fading out

Press FADER during playback to start fading out.
"FADE OUT" appears in the display and the time display counts backward to "0.0s" while fading out. After fading out, the deck automatically enters play pause mode.

## Changing the fade time

The FADE IN and FADE OUT times are factory set to 5 seconds. You can change the fade-in and/or fade-out durations from 1 to 15 seconds.

**1** Press FADER a few times while the deck is in stop mode to choose either "FADE IN" or "FADE OUT."

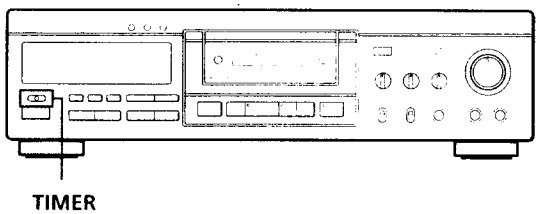
**2** Use ◀◀ or ▶▶ to select the respective fade duration.
Each time you press ◀◀ or ▶▶ the fade duration changes in 1 second.

**Note**

The fade-in and fade-out times automatically return to 5 seconds when you turn off the power.

# Playback Using a Timer (Timer Playing)

By connecting a timer (not supplied) to the deck, you can start and stop playback operations at specified times. For further information, refer to the instructions that came with the timer.




**1**
- To set the timer to start playback, do steps 1 to 3 of "Playing a DAT" on page 6.
- To set the timer to end playback, do steps 1 to 4 of "Playing a DAT" on page 6.
- To set the timer to start and end playback, do steps 1 to 3 of "Playing a DAT" on page 6.

**2** Set the TIMER switch on the deck to PLAY.

**3** Set the timer as required.
- When you have set the timer to start playback, the timer will turn off the deck. When the specified time arrives, the deck turns on and starts playing after about 4 seconds.
- When you have set the timer to end playback, the deck continues to play. When the specified time arrives the deck stops playing and turns off.
- When you have set the timer to both start and end playback, the timer will turn off the deck. When the start time arrives, the deck turns on and starts playing after about 4 seconds. When the end time arrives, the deck stops playing and turns off.

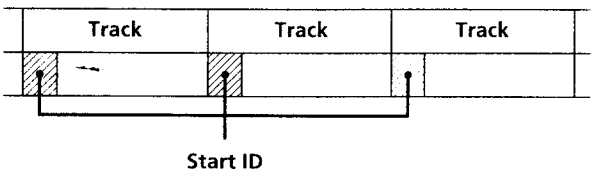
**4** After using the timer for playback set the TIMER switch on the deck to OFF.

**Note**

If you leave the TIMER switch in the ON position, the deck will start playing back automatically the next time you turn on the power.

# About Sub Codes

In the DAT format, sub codes (i.e., control codes such as start IDs and program numbers) can be written on the tape along with the audio signal. These sub codes let you to use the AMS, Direct Access, and MUSIC SCAN functions (see page 16). Since the sub codes are written on the tape separately from the audio signal, they have no effect on the audio signal.




## Start IDs

Start IDs indicate the start of a track, and therefore allow you to precisely locate the position of a track. The start IDs are 9 seconds long (18 seconds in long-play mode) to enable easy detection during fast-forwarding or rewinding.

## Program numbers

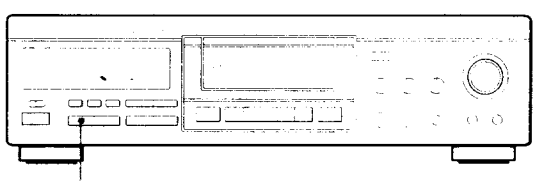
Program numbers serve as track numbers. They occupy the same position as start IDs and allow you to locate specific tracks easily.

**Notes**

- The ■ and ❚❚ buttons will not work when the deck is writing sub codes.
- Writing and erasing start IDs, and renumbering program numbers is not possible if the record-protect hole on the DAT cassette is open (see page 5).

# Writing Start IDs During Recording

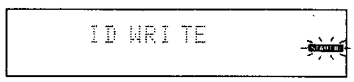
You can write start IDs either manually or automatically anytime during recording.




## Writing Start IDs Manually During Recording

Just press WRITE when you reach the position where you want to write the start ID. "ID WRITE" appears for a few seconds and the "START ID" indicator flashes in the display. The start ID is written on the tape at the selected position.

**Start ID**




**Note**

The interval between start IDs must be more than 18 seconds (36 seconds in long-play mode). If the interval is less than 18 seconds (or 36 seconds), the deck may fail to detect the second start ID during playback.

## Writing Start IDs Automatically During Recording

Start IDs are wirtten in one of the two following ways depending on the sound source and the position of the INPUT switch. Program numbers are also written in the same position automatically.

- When recording a CD or DAT, with the INPUT switch set to OPTICAL or COAXIAL:
  Start IDs are written automatically whenever a new track is detected. However, start IDs are not written for tracks less than 18 seconds long.
- When recording non-CD or DAT sources, or recording with the INPUT switch set to ANALOG:
  When "AUTO" is lit in the display, start IDs and program numbers are written whenever the input signal rises above a given level after remaining at a muted or low level for 3 seconds or more.
  Do the follwing if "AUTO" is not lit in the display.

**1** Do steps 1 to 7 of "Recording on a DAT" on pages 4 and 5 to prepare the deck for recording.

**2** Press AUTO so that "AUTO" appears in the display.

**3** If you want to record from the end of a previously recorded portion, press ►►.
The deck stops automatically at the beginning of the blank portion (End Search) and the program number following the program number of the last recorded track appears in the display.
(i.e., if the last recorded track was 5, the AUTO function will display program number 6).

(Continued)

**If you want to specify another program number**
Use the number buttons to enter the program number you desire. If you are recording from the beginning of a blank tape, the first start ID is assigned program number "1."

**If you forget program numbering at this time**
You can add them later, see "Renumbering Program Numbers Automatically (RENUMBER)" on page 21.

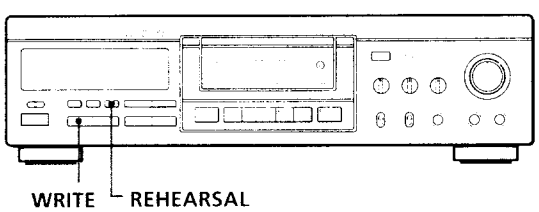
**4** Press ❚❚ or ► to start recording, then start playing the program source.
Start IDs (and program numbers) are written on the tape automatically during recording. "ID WRITE" appears for a few seconds whenever a start ID (and program number) is being written.

**When recording from a CD player**
Start recording on your deck first, then press the ► PLAY button on the CD player while it is stopped. If you place your deck into recording pause and the CD into play pause before you start recording, the start ID and program number of the first track on the CD may not be correctly written to the tape.

**Note**
During AUTO start ID writing, the positioning of some start IDs may be inaccurately or inappropriately positioned away from the beginning of the track. If this happens, you can reposition or erase the start IDs later (see "Accurate Positioning of Start IDs (Rehearsal)" on this page and "Erasing Start IDs" on page 21).

# Writing Start IDs During Playback

You can write start IDs in the position you want during playback.

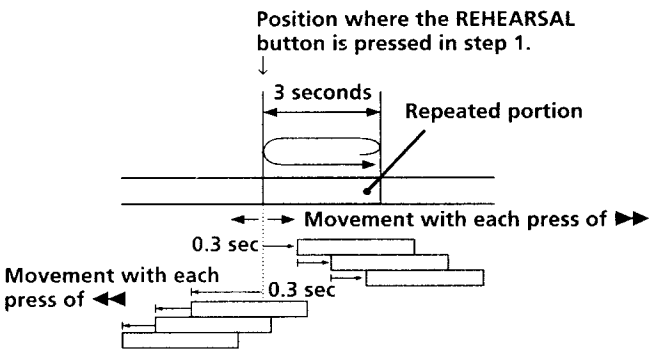



Press WRITE during playback when you reach the position where you want to write the start ID.
"ID WRITE" appears for a few seconds and the "START ID" indicator flashes in the display. The start ID is written on the tape at the selected position. See the following steps for more accurate positioning of start IDs.

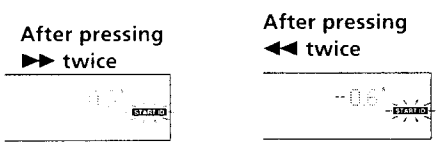
## Accurate Positioning of Start IDs (Rehearsal)

**1** During playback, press REHEARSAL when you reach the position where you want to write the start ID.
"REHRSL" appears and "START ID" flashes in the display.
Rehearsal repeats 3 seconds of the program, starting from the point you selected. The 3 second portion plays back 8 times. The remaining number of times appears to the right of "REHRSL." After 8 times, the deck stops automatically.

**2** Press ◄◄ or ►► during rehearsal to move the beginning of the repeated portion.
Each time you press ◄◄ or ►►, the beginning of the repeated portion shifts back or forward in 0.3 second increments (to a maximum of 2 seconds, 4 seconds in long-play mode, in either direction).



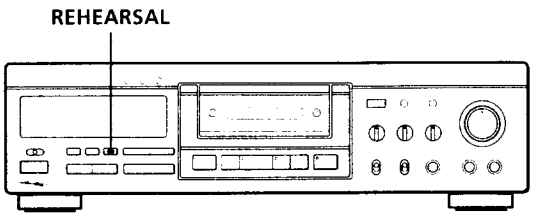

The time display shows the shift in position from when you pressed REHEARSAL.




**3** Press WRITE when the beginning of the rehearsal is in the position you desire.
"ID WRITE" appears for a few seconds and "START ID" flashes in the display. The start ID is written on the tape at the position you selected.

## Adjusting the Position of an Existing Start ID

You can adjust the position of previously recorded start IDs.




**1** During playback, press REHEARSAL when you reach the start ID you want to reposition.
The deck rewinds to the beginning of start ID and repeats a 3-second portion.

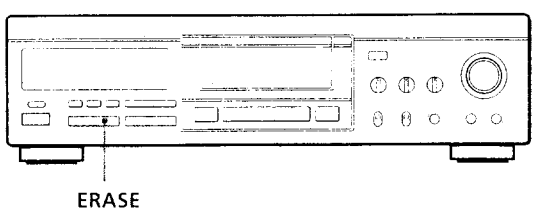
**2** Follow steps 2 and 3 of "Accurate Positioning of Start IDs (Rehearsal)."
You can move the start ID up to 2 seconds (4 seconds in long-play mode) in either direction from its original position.

**Note**

Start IDs written within 10 seconds from the end of the tape may be difficult or impossible to move.

## Erasing Start IDs

You can erase any start ID.



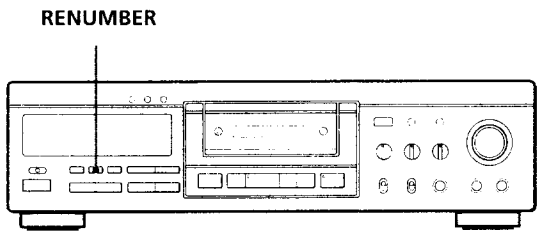

During playback, press ERASE within 9 seconds after reaching the start ID you want to erase.
"(ERASE)" appears in the display as the deck rewinds to the beginning of the start ID, then "ID ERASE" appears as the deck erases the start ID.

- It takes 9 seconds to erase a start ID.
- Program numbers are erased together with start IDs.

## Renumbering Program Numbers Automatically (RENUMBER)

Renumbering starts from the beginning of the tape and assigns a new program number to each start ID, starting with 1. Use Renumbering in the following cases:

- When you've added a start ID while playing the tape.
- When a program number is missing due to an erased start ID.
- When you wrote a program number that already exists, or when one of the the start IDs has no program number.




Press RENUMBER while the deck is playing or stopped.
"RENUMBER" flashes in the display and the tape automatically rewinds to the beginning. The deck starts searching for start IDs from the beginning of the tape and assigns new consecutive program numbers to each start ID.
When the deck detects a start ID "START ID" flashes in the display, the deck plays the 3 second portion following the start ID, and then writes the new program number on the tape.
After Renumbering is finished, the deck automatically rewinds the tape to the beginning and stops.

**Note**

Renumbering may not function correctly when:

- A blank section exists on the tape.
- The interval between two start IDs is less than 18 seconds (36 seconds in long-play mode).
- A start ID exists within 10 seconds from the end of the tape.

# Precautions

### On safety

- Do not disassemble the cabinet, this may result in an electric shock. Refer servicing to qualified personnel only.
- Should any solid object or liquid fall into the cabinet, unplug the AC power cord before operating the unit any further.

### On power sources

- Before operating the unit, check that its operating voltage is identical with your local power supply. The operating voltage is indicated on the nameplate at the rear of the unit.
- The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- If you are not going to use the unit for a long time, be sure to disconnect the AC power cord (mains lead) from the wall outlet. To disconnect the cord, grasp the plug itself; never pull the cord.
- AC power cord must be changed only at the qualified service shop.

### On operation

If the unit is brought directly from a cold place to a warm place, or is placed in a very damp room, moisture may condense inside the unit, "CAUTION" may appear in the display, and the unit may not operate. If this happens, remove the cassette and leave the unit turned on for about an hour until the moisture evaporates.

### On placement

- Place the unit in a location with adequate ventilation to prevent heat build-up.
- Do not place the unit:
  - — on a soft surface such as a rug that might block the ventilation holes on the bottom.
  - — near heat sources.
  - — in direct sunlight.
  - — in an inclined position.
  - — in a place subject to excessive dust or mechanical shock.

### On the tapes

- After using a tape, put it into its case and keep it where it will not be subject to sunlight, high temperature, moisture or dust.
- Do not use thin-tape cassettes (with a playing time of over 120 minutes) since this may cause the unit to display inaccurate time information, or result in tape damage caused by abnormal operation.
- The DAT cassette shell is designed to keep out dust. Do not open the case to expose the tape.
- The hole at the back of the cassette is the detector slot. Do not cover this slot.

If you have any questions or problems concerning your unit, please consult your nearest Sony dealer.

# Cleaning

Use a soft cloth slightly moistened with a mild detergent solution to clean the cabinet panel and controls. Do not use any type of abrasive pad, scouring powder or solvent, such as alcohol or benzine.

## Cleaning the head and tape path

- Prolonged operation will cause contamination of the head. To obtain the best possible sound during recording and playback, we recommend that you use the Sony DT-10CL cleaning cassette (not supplied) to clean the head after every ten hours or so of operation.
- Clean the head with the cleaning cassette when the deck has not been used for a long period of time. Contamination of the head may cause sound drop-out during playback.

### Using the cleaning cassette

1 Insert the cleaning cassette as you would a normal DAT cassette.
2 Press ►. After 10 seconds, press ■.
Do not press the REC ● or ►► button for cleaning.
3 Remove the cleaning cassette without rewinding it. You should rewind the cleaning cassette only when it has reached the end.

### Notes on cleaning

- After 10 hours of operation, "CLEANING" appears in the display for about ten seconds when you turn on the deck. It is recommended that you clean the head and tape path periodically, using this message as a guide.
- Due to the shortness of the cleaning cassette, the counter will not show the actual running time and remaining time of the cassette.

# Display Messages

The following table explains the various messages that appear in the display.

| Message | Meaning |
|---|---|
| ANALOG | This appears for a few seconds when you set the INPUT switch to ANALOG. |
| BLANK | The tape is searching for the end of the recorded portion. |
| CAUTION | A safety mechanism is operating because of condensation or other reasons. |
| CLEANING | Cleaning the head and tape path is recommended. After about 10 hours of deck use, this message appears for about 10 seconds whenever you turn on the deck . |
| COAXIAL | This appears for a few seconds when you set the INPUT switch to COAXIAL. |
| (ERASE) | The deck is searching for the beginning of the start ID to be erased. |
| ID ERASE | A start ID is being erased. |
| ID WRITE | A start ID or program number is being written. |
| MIC | This appears for a few seconds when you set the INPUT switch to MIC. |
| MIC ATT | This appear for a few seconds when you set the INPUT switch to MIC ATT. |
| NO TAPE | A cassette is not inserted into the deck. |
| OPTICAL | This appears for a few seconds when you set the INPUT switch to OPTICAL. |
| PROHIBIT | The program source you are about to record cannot be recorded through the digital input jacks or connectors. For more information, see "Guide to the Serial Copy Management System" (see pages 26 and 27). |
| PROTECT | The record-protect hole on the cassette is open and recording on the tape cannot be done. |
| REHRSL | Rehearsal is on. |
| SOURCE | The deck has been in recording pause for about 10 minutes, or you've pressed the REC ● button while no cassette is in the deck or the cassette is record-protected. |
| TAPE END | The tape has come to the end of the recorded portion. |
| TAPE TOP | The tape has reached its beginning. |
| UNLOCK | No digital signal is being input to the jack or connector that you selected with the INPUT switch. |
| WAIT | The deck is searching for the beginning of the blank section on the tape. |
| (WRITE) | This appears when the WRITE button is pressed. |

# Troubleshooting

If you've experienced any of the following difficulties while using the deck, use this section as a guide to remedy the problem. Should any problem persist, consult your nearest Sony dealer.

**The cassette holder does not close.**

- ➡ Check that the DAT cassette is inserted correctly (see pages 4 and 6).
- ➡ Insert the DAT cassette beyond the silver bar (see pages 4 and 6).

**The function buttons do not work.**

- ➡ The deck has just been turned on and will not operate for about 4 seconds. Wait 4 seconds (10 seconds when "CLEANING" appears) before attempting any operation.
- ➡ The ❚❚ button is activated. Press ❚❚ to cancel pause.
- ➡ The tape has reached its end. Press ◀◀ to rewind the tape.

**No sound**

- ➡ Make the proper connections (see pages 7 and 8).
- ➡ The connected amplifier is not being operated properly. Operate the amplifier as required for the respective deck operation. (Refer to the operating instructions of the amplifier.)

**The deck does not record.**

- ➡ The record-protect hole on the cassette is open. Slide the record-protect tab to close the hole (see on page 5).
- ➡ The INPUT switch is incorrectly set. Set INPUT to the correct position.
- ➡ The REC LEVEL control is set at 0. Turn REC LEVEL clockwise to raise the recording level (only during analog recording).
- ➡ The signal input to the digital input jack or connector is protected against digital copying (only during digital recording). Input the signal through the analog input jack or connector.

**The OPEN/CLOSE ⏏ button does not work.**

- ➡ The OPEN/CLOSE ⏏ button does not function during recording. Press ■ or ❚❚ to stop recording first, then press OPEN/CLOSE ⏏.

**"CAUTION" appears and the deck cannot be operated.**

- ➡ A safety mechanism is operating because of condensation. Remove the cassette and leave the deck turned on for about an hour. Then turn the deck off, then on again (see page 22).

**Sub codes writing is not possible.**

➡ The record-protect hole on the cassette is open. Slide the record-protect tab to close the hole (see page 5).

**Start ID writing is not possible during recording.**

➡ The start ID cannot be written within 9 seconds (18 seconds in long-play mode) after the end of the previous start ID. Make sure at least 9 seconds (18 seconds in the long-play mode) has passed after the last start ID and before writing a new one.

**Direct Access does not work.**

➡ The specified program number does not exist on the tape. Press RENUMBER to renumber the program numbers.

➡ The program numbers are out of order. Press RENUMBER to renumber the program numbers.

**The deck begins rewinding the tape during playback.**

➡ Repeat Play is on.
Press REPEAT on the remote a few times so that "REPEAT" or "REPEAT 1" goes out to cancel Repeat Play.

**The tape operation buttons do not function while writing or erasing a start ID.**

➡ All buttons do not work during the 9 seconds the start ID is being written (18 seconds in long-play mode). Wait until the start ID has been written before operation.

**Absolute time codes are not written.**

➡ Recording began within a blank section. Rewind the tape to its beginning, or locate the end of the recorded portion with End Search before starting to record.

**Tape transport is excessively loud during fast-forwarding or rewinding.**

➡ The noise is caused by the cassette and is not a mechanical problem.

**The tape stops suddenly.**

➡ The cassette is defective or damaged. Press OPEN/CLOSE ⏏ and replace the cassette with a new one.

**When pressing ◀◀ /▶▶ or ⏮/⏭, the tape stops momentarily before starting to move.**

➡ This is normal and is not a mechanical problem.

**The deck cannot be operated with the remote (supplied).**

➡ The batteries are weak. Change both batteries.

# Specifications

## System

| | |
|---|---|
| **Tape** | Digital audio tape |
| **Recording head** | Rotary head |
| **Recording time (when using DT-120)** | Standard: 120 minutes<br>Long-play: 240 minutes |
| **Tape speed** | Standard: 8.15 mm/s<br>Long-play: 4.075 mm/s |
| **Drum rotation** | Standard: 2,000 rpm<br>Long-play: 1,000 rpm |
| **Track pitch** | 13.6 µm (20.4 µm) |
| **Sampling frequency** | 48 kHz, 44.1 kHz, 32 kHz |
| **Number of channels** | 2 channels, stereo |
| **D / A conversion (quantization)** | Standard: 16-bit linear<br>Long-play: 12-bit non-linear |
| **Frequency response** | Standard: 2-22,000 Hz (±0.5 dB)<br>Long-play: 2-14,500 Hz (±0.5 dB) |
| **Signal-to-noise ratio** | 93 dB or more (Standard and long-play mode) |
| **Dynamic range** | 93 dB or more (Standard and long-play mode) |
| **Total harmonic distortion** | Standard: 0.0045% or less (1 kHz)<br>Long-play: 0.08% or less (1 kHz) |
| **Wow and flutter** | Below measurable limit (±0.001% W.PEAK) |

## Input Connectors

| Connector | Jack type | Input impedance | Rated input level |
|---|---|---|---|
| **ANALOG (LINE)** | Phono jacks | 47 kilohms | −4 dBs |
| **MIC L/R** | Standard Jack | 5 kilohms | −60 dBs |
| **DIGITAL OPTICAL** | Optical connector | — | — |
| **DIGITAL COAXIAL** | Phono jack | 75 ohms | 0.5 Vp-p |

## Output Connectors

| Connector | Jack type | Output impedance | Rated output level | Load impedance |
|---|---|---|---|---|
| **ANALOG (LINE)** | Phono jacks | 470 ohms | −4 dBs | 10 kilohms or more |
| **DIGITAL OPTICAL** | Optical connector | — | (wavelength 660 nm) | — |
| **DIGITAL COAXIAL** | Phono jack | 75 ohms | 0.5 Vp-p | 75 ohms |
| **HEADPHONES** | Stereo phone-plug jack | 100 ohms | 1.2 mW | 32 ohms |

### General section

**Power requirements**

| Where purchased | Power requirements |
|---|---|
| U.S.A. | 120 V AC, 60 Hz |
| U.K. | 220 - 230 V AC, 50/60 Hz |

**Power consumption** 35 W

**Dimensions** Approx 430 × 122 × 350 mm (w/h/d) ($17 \times 4^{7}/_{8} \times 13^{3}/_{4}$ inches)

**Weight** Approx 7.5 kg

### Remote commander RM-D868 (supplied)

**Dimensions** Approx 45 × 185 × 20 mm (w/h/d) ($1^{13}/_{16} \times 7^{3}/_{8} \times {}^{13}/_{16}$ inches)

**Weight** Approx 100 g (3.5 oz) incl. batteries

**Supplied accessories** See page 7.

Design and specifications are subject to change without notice.

# SBM (Super Bit Mapping)

During analog recording, the SBM function lowers noise within the frequency band to which to the human ear is most receptive to noise, thereby, sharply expanding the auditory dynamic range of the recorded signal.
To activate the function, turn on the SBM switch when recording an analog source through the analog (LINE IN, or MIC) connectors. SBM cannot be used when LONG (32 kHz) is selected.

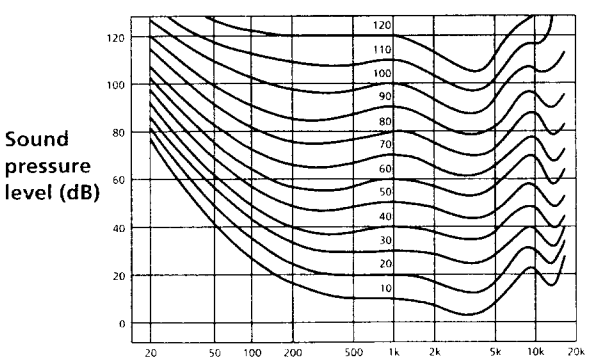
## High-precision pulse A/D converter

The deck uses a pulse A/D converter and decimation filter to convert an analog signal into a quantized 24-bit digital signal. The deck, like CD players, uses 16-bit quantization, and thus the 8-bit difference results in more precise quantization, more signal information and less quantizing noise than 16-bit quantization. During conversion of the 24-bit data to a 16-bit recording signal, the SBM function boosts sound quality by reintegrating 4 bits of signal information that would normally be lost into the 16-bit signal.

## Applying the principle of human hearing

The SBM function applies the principle of human hearing in the reintegration of signal information. The auditory range of the human ear is generally considered to be 20 Hz to 20 kHz; hearing sensitivity, however, shows greater sensitivity to the range between 3 kHz and 4 kHz, and lower sensitivity to frequencies above and below this range (see Fig. A). This principle applies also to quantizing noise as well. By reducing quantizing noise in this particular range, signals can be recorded to produce more expansive sound than is possible by a uniform reduction of noise over the entire audible range.

Fig. A



## Noise-shaping filter

The SBM function uses a noise-shaping filter (see Fig. B) with a frequency response similar to that of the human ear to reduce quantizing noise within the most sensitive frequency range, and to feed back the quantizing error (that is normally lost) back to the input signal, re-integrating the low-end bit information with the high-end bit information (see Fig. B)

Fig. B

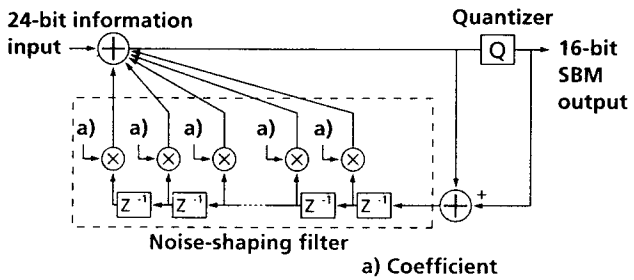
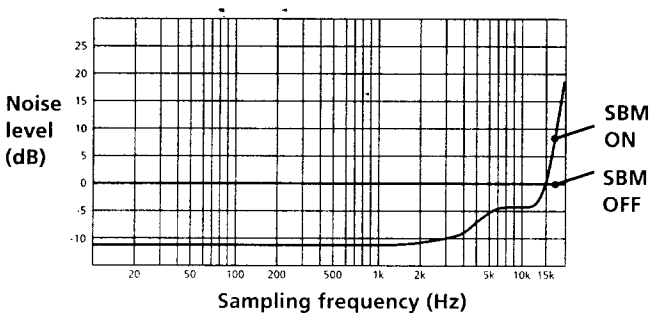



Fig. C shows the improvement in the quantizing noise level when the SBM switch is on (theoretical values). Given a noise level of 0 dB when the SBM switch is off, the improvement in noise level for sampling frequencies lower than 3 kHz exceeds 10 dB when the SBM is activated.

Fig. C

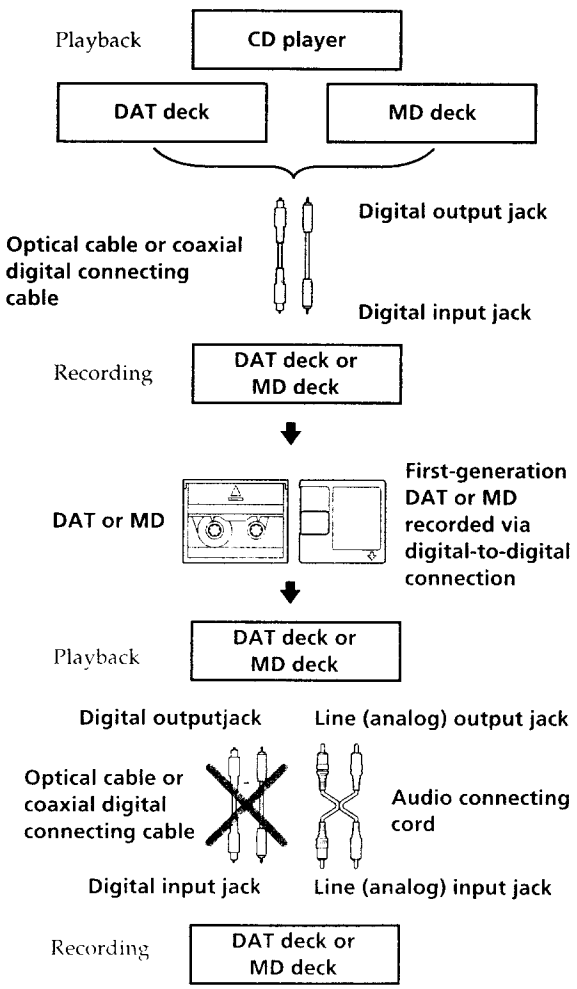



Since the SBM function only operates during recording, the improved sound produced by the SBM function can be enjoyed during playback regardless of the SBM switch position or the DAT deck being used.

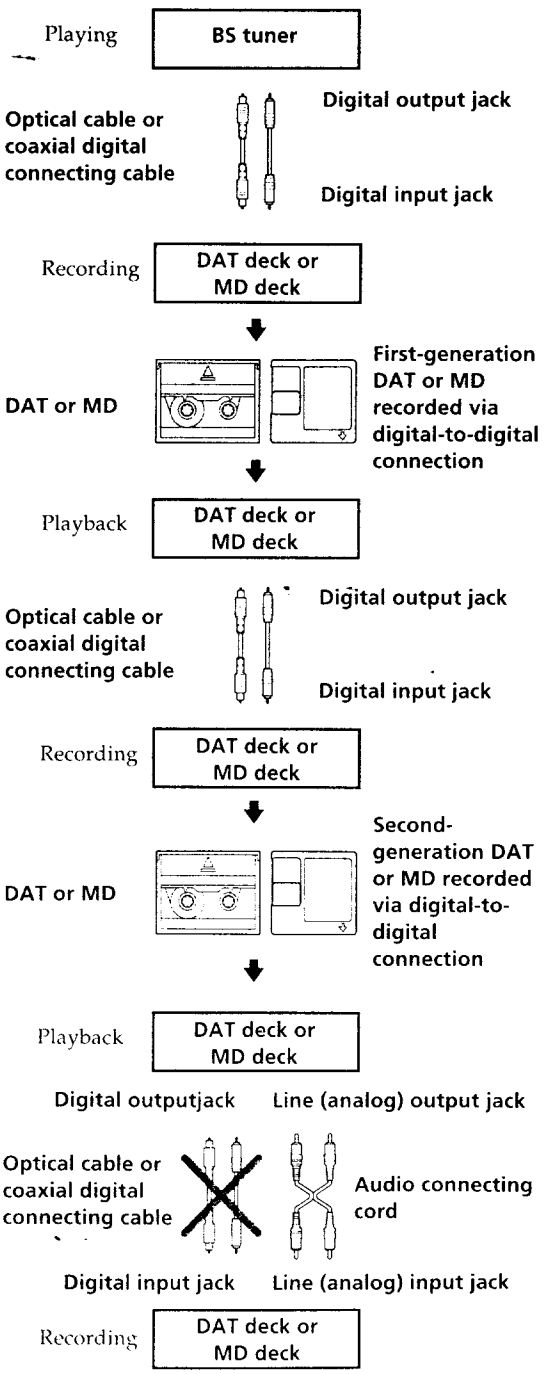
# Guide to the Serial Copy Management System

This deck uses the Serial Copy Management System, which allows only first-generation digital copies to be made of premastered software via the deck's digital input jack. An outline of this system appears below:

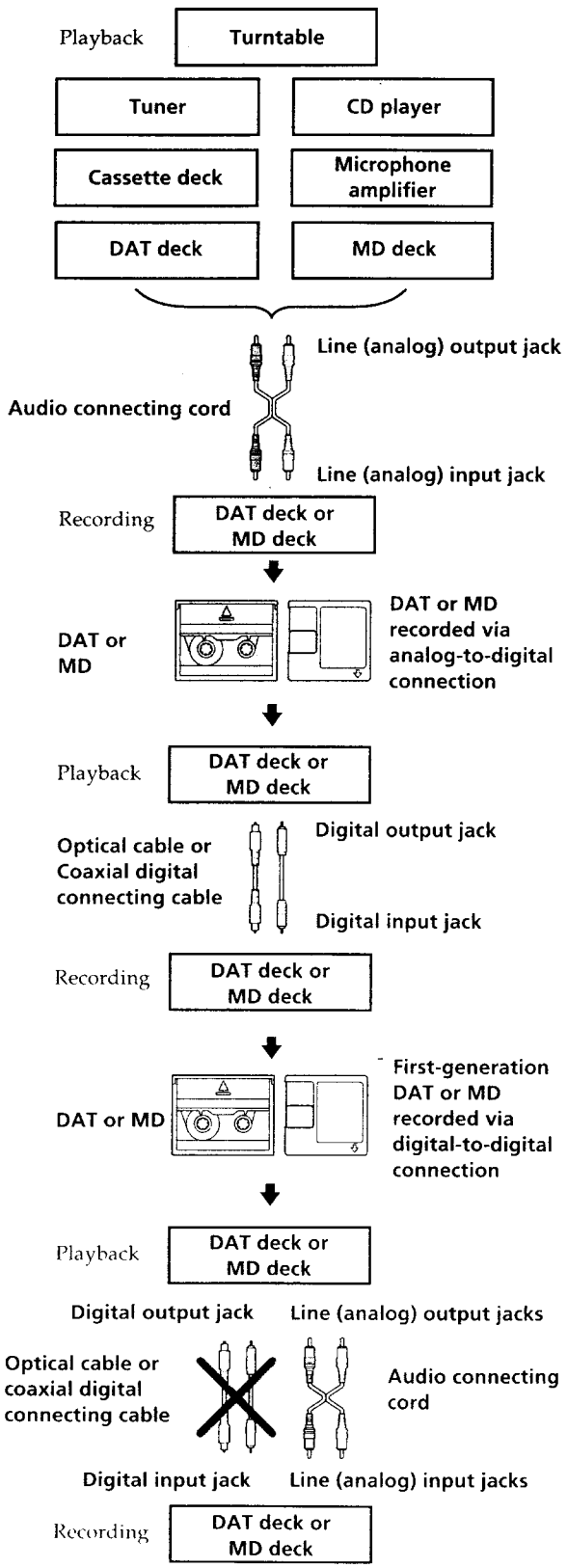
1 You can record from digital program sources (CDs, premastered MDs or DATs) onto a DAT or recordable MD via digital input jack on the DAT or MD deck. You cannot, however, record from the duplicate DAT or MD onto another DAT or recordable MD via the digital input jack on the DAT or MD deck.



2 You can record the digital input signal of a digital satellite broadcast onto a DAT or recordable MD via the digital input jack on the DAT or MD deck which is capable of handling a sampling frequeny of 32 kHz or 48 kHz. You can then record the contents of this recorded DAT or MD (first-generation) onto another DAT or recordable MD via digital input jack on the DAT or MD deck to create a second-generation digital copy. Subsequent recording from the second-generation copy onto another DAT or recordable MD is possible only through the analog input jack on the DAT or MD deck.




3 You can record a DAT or MD recorded via the DAT or MD deck's analog input jack onto another DAT or MD via the DAT or MD deck's digital output jack. You cannot, however, make a second-generation DAT or MD copy via the DAT or MD deck's digital output jack.



# Index



## Names of controls